

fluid escapes through the opening in the subarachnoid, it becomes obvious that there is a decrease in total brain mass. The result is a neurosurgical field involving excellent exposure and a marked decrease in tissue tension. Clinical experiences with more than 250 intracranial procedures (3 failures) since February 1958 indicate that these techniques are equal or superior to the use of hypothermia, induced hypotension, and chemical dehydration in the attainment and maintenance of a "relaxed" brain, a facile surgical approach, and a minimum of neurophysiological morbidity.

**Postoperative Distress in Children.** ROBERT M. SMITH, M.D., JOHN B. STETSON, M.D., AND ANIBAL SANCHEZ-SALAZAR, M.D., *Department of Anesthesiology, Children's Hospital Medical Center, Boston.* The behavior of pediatric patients was observed during postoperative recovery to determine the incidence of pain or other forms of distress. This group, consisting of 355 infants and children from newborn to 12 years of age, was followed throughout the entire hospital stay. As might be expected in any study of pain, many problems of definition and interpretation complicated our attempts to draw specific conclusions, however, several interesting features did begin to take form. There appeared to be several different awakening patterns that a child might follow. It was at once evident that the majority of patients had little or no appreciable discomfort in the early recovery period. On the average day, out of twenty children who were observed in the Recovery Room, only one or two required medication for any form of distress. This low incidence suggests that much of the complex reaction to pain may be a type of behavior that must be learned. A few older children awoke promptly and indicated clearly the site and nature of their pain. This occurred more frequently following thiopental-nitrous oxide or cyclopropane anesthesia. The most interesting group consisted of children who would awaken and complain bitterly for approximately one minute, then fall sound asleep and not stir for another five or ten minutes. This performance would be repeated again and again. Many nonspecific signs of distress were observed, including crying, restlessness, excite-

ment, rapid pulse, and irregular respiration or coughing. While these might be signs of physical pain, children sometimes were found to be equally upset by hunger, fatigue, thirst, unusual surroundings, or desire for their mother—factors that would not ordinarily be considered indication for analgesic agents. The signs of distress varied markedly with age. Except for a few infants who showed costal splinting after intrathoracic procedures, small babies rarely appeared to have appreciable pain. The type of operation showed definite relationship to postoperative distress. Following intrathoracic procedures all children over one year of age had sufficient pain from the wound or drainage tubes to require narcotics, and usually required 5 to 10 doses. Children recovering from orthopedic operations also showed considerable discomfort, 78 per cent requiring relief for pain of wound, cast or abnormal positioning. Other types of surgery caused surprisingly little distress. After upper abdominal procedures 56 per cent required narcotics, but on an average of only 2.2 doses each. Herniorrhaphy brought significant distress to only one in ten children. Extensive dental operations, plastic procedures, and neurosurgery rarely caused any appreciable discomfort. Before therapy was attempted, a definite effort was made to identify the cause and nature of each child's distress. To rule out abortive periods of excitement, no patients were allowed medication until distress had been evident for 10 minutes. Therapy in the nature of a narcotic, morphine, meperidine, or phenazocine, was administered intramuscularly or intravenously in doses of 0.05 to 0.1 mg./pound, 0.5 to 1.0, or 0.005 to .01 mg./pound, respectively. All three drugs proved effective not only in controlling true pain, but also in quieting children whose distress appeared to be emotional rather than physical in origin.

**A Comparison of the Effects of Halothane, Cyclopropane, and Ether on the Ventricular Contractile Force of the Human and the Dog.** J. HENRY SPROUSE, M.D., JOHN E. MAHAFFEY, M.D., T. D. DARBY, Ph.D., AND JOHN A. HALL, M.D., *Departments of Anesthesiology and Pharmacology, Medical College of South Carolina, Charleston, South Carolina.* It is generally accepted that agents